Pre-processing of fiber photometry signal

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An abbreviated version of this protocol was published in eLIFE in Sep 2020

Acetylcholine is released in the basolateral amygdala in response to predictors of reward and enhances the learning of cue-reward contingency

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Detailed protocol

Full data, code, and details for each script can be found at https://doi.org/10.5061/dryad.3xsj3txcf. Attached are modified versions of the pre-processing scripts that will more easily allow someone to pre-process their data using the least mean squares regression method.

To pre-process a raw doric FP file, open the script Basic_FP_Processing.m and change the directory to match the folder where your raw doric files are. Running the script will call calculateDF_F0.m and subtractReferenceAndSave.m, resulting in a .csv with the prefix "PROCESSED_" for each file processed. Inside this output file, there will be 4 columns: Time, Reference (DF/F0), Signal (DF/F0), and Corrected. Corrected is the difference between column 2 and 3. We analyzed the reference and signal channels separately instead of using the reference subtracted column.

If not using a Doric system, the required format of the data is a .csv with 3 columns: timestamps, reference channel, and signal channel. The z-scoring mentioned in the methods was done in the next step of the pipeline, and the function nanzscore was used (uploaded here).

Related files

Crouse et al pre-processing.zip

How to cite:（Readers should cite both the Bio-protocol preprint and the original research article where this protocol was used）

1. Crouse, R. B.(2020). Pre-processing of fiber photometry signal. Bio-protocol Preprint. bio-protocol.org/prep699.
2. Crouse, R. B., Kim, K., Batchelor, H. M., Girardi, E. M., Kamaletdinova, R., Chan, J., Rajebhosale, P., Pittenger, S. T., Role, L. W., Talmage, D. A., Jing, M., Li, Y., Gao, X., Mineur, Y. S. and Picciotto, M. R.(2020). Acetylcholine is released in the basolateral amygdala in response to predictors of reward and enhances the learning of cue-reward contingency. eLIFE. DOI: 10.7554/eLife.57335

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